

What is claimed is:

[Claim 1] 1. A method of estimation parameter adaptability adjustment of an optical storage device for determining an estimation parameter according to a current data recording location of the optical storage device to estimate a channel bit rate, the method comprising:

- (a) providing an estimation parameter table, wherein the estimation parameter table includes a plurality of estimation parameters corresponding to data recording locations; and
- (b) determining the estimation parameter according to the current data recording locations and the estimation parameter table to estimate the channel bit rate.

[Claim 2] 2. The method of claim 1, further comprising:

estimating the channel bit rate according to a current rotational frequency and the estimation parameter determined in step (b).

[Claim 3] 3. The method of claim 2, further comprising:

determining the current rotational frequency according to a frequency generator counting value, the FGCNT value.

[Claim 4] 4. The method of claim 1, wherein the estimation parameter table is a two-dimensional estimation parameter table and the plurality of estimation parameters correspond to linear velocities and the data recording locations, the method further comprising:

(c) determining a linear velocity estimation value;
wherein step (b) determines the estimation parameter according to the linear velocity estimation value.

[Claim 5] 5. The method of claim 4 further comprising:

(d) providing an interpolation index; and

(e) determining a value of the interpolation index;
wherein step (b) determines the estimation parameter using an interpolation operation with respect to the interpolation index.

[Claim 6] 6. The method of claim 5 further comprising:

comparing the estimated channel bit rate with a current channel bit rate to reduce a difference between the estimated channel bit rate and the current channel bit rate by repeating step (e).

[Claim 7] 7. The method of claim 5 further comprising:

monitoring frequency locking time to reduce a difference between the estimated channel bit rate and a current channel bit rate by repeating step (e).

[Claim 8] 8. The method of claim 4 further comprising:

comparing the estimated channel bit rate with a current channel bit rate to reduce a difference between the estimated channel bit rate and the current channel bit rate by repeating step (c).

[Claim 9] 9. The method of claim 4 further comprising:

monitoring frequency locking time to reduce a difference between the estimated channel bit rate and a current channel bit rate by repeating step (c).

[Claim 10] 10. The method of claim 4, wherein step (b) determines the estimation parameter using an interpolation operation with respect to an interpolation index, the method further comprising:

checking charging and discharging of a current pump of a phase-locked loop of the optical storage device to reduce a number of times of

charging and discharging of the current pump by adjusting a value of the interpolation index.

[Claim 11] 11. The method of claim 4 further comprising:

checking charging and discharging of a current pump of a phase-locked loop of the optical storage device to reduce a number of times of charging and discharging of the current pump by adjusting the linear velocity estimation value.

[Claim 12] 12. The method of claim 4, wherein step (b) determines the estimation parameter using an interpolation operation with respect to an interpolation index, the method further comprising:

checking a logic signal of a current pump of a phase-locked loop of the optical storage device to reduce a number of times of charging and discharging of the current pump by adjusting a value of the interpolation index.

[Claim 13] 13. The method of claim 4 further comprising:

checking a logic signal of a current pump of a phase-locked loop of the optical storage device to reduce a number of times of charging and discharging of the current pump by adjusting the linear velocity estimation value.

[Claim 14] 14. The method of claim 1, wherein the optical storage device is a CD drive or a CD burner, the method further comprising:

representing the data recording locations using a plurality of address times of a CD.

[Claim 15] 15. The method of claim 1, wherein the optical storage device is a DVD drive or a DVD burner, the method further comprising:

representing the data recording locations using a plurality of sectors of a DVD.